FACTS AND FICTIONS CONCERNING EDUCATIONAL VALUES.[1]

An American once asked a Chinaman why the Chinese always built pagodas fourteen stories high. The reply was: "That is the way to build a pagoda." Very similar is the reason frequently given as to why a course of study should contain certain subjects and only these. The curriculum is modeled upon traditional patterns, and the assumption is made that that is the proper way to have them. What has been long in a course receives traditional approval, and it becomes assumed that each particular branch has some special value. Should the question be raised as to why a given study is in the curriculum, or why recommended to be taken by the pupil, nine out of ten persons, laymen and teachers alike, would give one of two answers: (1) Because it is useful, or (2) Because it is a valuable mental discipline. Probably almost every subject that has ever found its way into a curriculum of study from the kindergarten through the university first gained an entrance because of its supposed immediate utility. But once in, even though it has outlived its usefulness many centuries, it is apt to hold its place because of its supposed *disciplinary* value. Witness this in the arithmetical puzzles that now worry children, but which once represented business methods. I suppose that if ever a pocket talking should be invented whereby one could produce type-written copies of speech absolutely perfect, some pedagogues would still desire to give every boy and girl a full course of handwriting, because of its valuable discipline. If anyone wishes to get nearly the child's side of the question, let him try to compose profound thoughts in a foreign language, and to write them down with a scratchy pen and with the left hand.

Unfortunately, the logical sequence of topics and psychological symmetry have been the chief principles considered in the arrangement of courses of study. An attempt has been made to

[1] Read at the Teachers' Association of South-western Iowa.

seek those subjects which are supposed to afford exercise of a particular kind for the mind—a sort of gymnastics prescribed for a particular function. These subjects are then arranged systematically according to the logical development of the subject. Witness this in arithmetical studies, given supposedly for the purpose of developing the reasoning powers, and formerly pursued until finished before turning to geometry and algebra, which, though easier, do not logically follow the beginnings of arithmetic. Plainly the subject has been considered of more importance than the child.

In the primary school the courses are largely made up of studies that are supposed to prepare directly and definitely for higher work. Reading, writing, and arithmetic form the so-called staples of instruction. History and geography are included and frequently called information studies. Nature study is supposed to train the observation, and grammar is put in as a "disciplinary" study. Concerning the high school the idea has become widespread that it is chiefly a place for discipline and training and the cultivation of mental power. Every platform speaker at the opening exercises emphasizes the thought that if the pupils will only submit patiently to the prescribed exercises, later in life they will have become armoured for any sort of mental fray. In their commencement orations the fledgelings re-echo the thoughts about the paramount importance of mental discipline, though what they mean by it is still more hazy and undefined than in the minds of their elders. In the college and the university a few required subjects are still retained, but the number is being constantly reduced. The requirements are also becoming very different for different groups, and demanded because they are preliminary to the successful mastery of the group. Thus the disciplinary reason gives way to that of practical utility.

The doctrine of educational gymnastics has gained an alarming hold. Teachers are told that "mental power is a more valuable result of teaching than mere knowledge," and hence the process of acquiring becomes more important than the knowledge acquired. "Power abides; facts are forgotten," they

are told. Now, there is no psychological warrant for these assumptions. Great stress has been placed upon the assumed principle that the mind is a sort of mass of latent potentialities which proper gymnastics or grooming can awaken to activity. Through this activity it is supposed to have gained strength, and this strength is further supposed to be applicable in any direction. That is, it is assumed that mental power is something perfectly general and may be applied to any specific problem. As Dr. DeGarmo has stated the theory (in repudiating it), it assumes "that the mind can store up mechanical force in a few subjects, like grammar and mathematics, which can be used with efficiency in any department of life." "That is," observes Dr. Hinsdale, "the process that formal discipline assumes may be likened to the passage of energy from the fires of the sun, first to vegetation, and then to the coal beds and subterranean reservoirs of oil and gas, whence it is again drawn forth to cook a breakfast, to warm a drawing-room, to light a city, or to propel a steamship across the ocean."

This hypothesis, I shall try to prove, is entirely untenable, and we must seek some other basis for the selection of subjects for any school curriculum. Many analogies have been drawn from the realm of physiology in formulating theories of mind. This theory has undoubtedly derived much of its support from false physiological analogies, and it is to a consideration of that I shall first direct attention.

Dr. Hinsdale says: "The force engendered by any defined exertion of physical power is fully available for all like kinds of exercise, but only partially so for unlike kinds." Thus, the power or skill engendered by driving nails can all be used in driving nails, but only partially so in shoving a plane.

> Activity tends, first to invigorate the whole body—"tone it up," as we say—and, secondly, to overflow into new channels lying near to the one in which it was created. . . . . The facts do not prove that a reservoir of power can be accumulated by any one kind of effort that can be used indifferently for any and all purposes. There is no such thing as a formal physical discipline. Energy created by activity flowing in one channel cannot be turned at will into any other channel. A boxer is not perforce a fencer. A pugilist does not train promiscuously, but according to certain strict methods that experience has approved.

One of the most significant lines of psychological investigation in throwing light upon the question of general mental development through special training has been the investigation of memory-training. The popular mind declares that a child should memorize gems of poetry, proverbs, entire poetic and prose selections, etc., in the perfect belief that his general memory will be strengthened. Never was there a greater fiction. While it is a good thing to memorize gems of poetry, the reason usually assigned is a bad one pedagogically. The quotations should be learned for the sake of the thought, and not as memory-training. By careful experimentation Professor James and others have shown, and I have confirmed, that long practice in memorizing material of one kind in no way aids memory for totally different things. Even long attention to memorizing of poetic writing does not assist much, if any, in memorizing prose. Still less would the poetry assist in the memorizing of chemical names and geological specimens. Everyone can affirm this in his own experience. Every adult student, according to the popular doctrine, ought to possess a perfect memory for all things. The poor memory has been crammed and exercised on various studies for upwards of twenty years, but how many persons remember the names of persons they meet any better than they did in childhood? How many married men have infallible memories for mailing their wives' letters, or purchasing the spool of thread, or recalling the dress that somebody wore at the party, or the decorations of the house, or the setting of the table, the pattern of the glassware, etc.? I suspect that the more the mind has been exercised with Latin roots, antediluvian fossils, amœboid specimens, or mathematical formulæ, the less apt the everyday affairs are to be remembered.

We know also that there are many types of memories. One person has a good verbal memory; a second a memory for faces; a third for dates; a fourth has a good memory for facts scientifically arranged, but a poor desultory memory; another a memory for musical tones, etc. Now, if memory exercise in general operated according to the hypothesis of formal discipline, should not one's memories for all types be equally good? The fact is we have

memories rather than memory. The same line of discussion would be applicable to imaginations. Few people have imaginative powers equally strong in all directions. Still more striking are the examples of specialized development in those with phenomenal memories and imbecile understanding. Again, if the dogma of formal discipline were true, why should not the intellect, the feelings and the will all be developed equally? As a matter of fact, there are often the utmost extremes in the same individual. Even with a given power or faculty, we may find great extremes in the same individual. Take the judgment, for example. As Dr. Hinsdale remarks:

> No curious observer can fail to notice how practical ability to judge and to reason tends to run in special channels. Eminence in microscopy, in sanitary science, in engineering, in philology, in a thousand specialized pursuits is no guaranty of ability in other matters, or even of good sense in the common affairs of life. The only astrologer whom I have ever happened to know personally was an eminent civil engineer.

We hear much fiction concerning the efficiency of certain studies, especially natural science, in training to acuteness of observation. It has been taught that training to observe in one field will insure skill in other directions as well. Now, as a matter of fact, easily verified by common experience, training in observation is special in its effects rather than general. Training in observing zoölogical specimens, for example, will not give increased skill in observing music, grammatical niceties, or spring fashions. Should you meet two acquaintances on the street, the one a skilled botanist, and the other an uneducated person, the latter would be more apt to observe you than your biological friend. Dr. William T. Harris says:

> An education in science, although it fits a person to observe in the line of his own specialty, does not fit him to observe in the line of another science which he has not investigated. On the contrary, the training in one particular line rather tends to dull the general power of observation in other provinces of facts. The archæologist Winckelmann could recognize a work of art by a small fragment of it, but it does not follow that he could observe a fish scale and recognize the fish to which it belonged. On the other hand, Agassiz could recognize a fish from one of its scales, but could not like Winkelmann recognize a work of art from one of its fragments.

Thus it is evident that there is no class of objects nor group of subjects which forms a monopoly in training in observation. To become a good observer in any direction we must observe much and carefully in that direction. We must store the mind with a fund of information which will form an apperception mass, in the light of which new material becomes attractive and through which it is evaluated.

Professor Thorndike says:

> Our mental functions are rather highly specialized, and they may be to a large extent independent of each other, that training in one may not improve others markedly, or perhaps at all. For instance, if a person tries to train himself to observe and discriminate words by marking on page after page all the words containing *e* and *s*, he will not succeed in becoming observant or discriminative of the meanings or length of words. The training is really only of observing words as containing or not containing *e* and *s*,

and will not assist even in marking other letters. In an experimental test he believes he has shown that accuracy gained in arithmetic is not carried over into spelling. I presume few of the supporters of the doctrine of mental discipline would wish to have the efficiency of their mental powers measured by their spelling.

There are some very curious attempts to get one kind of a result from an entirely different form of training. Among the latest of these is the assumption that we are teaching morality through art and athletics. I have no word of fault with art or athletics; I believe in both; but we should be satisfied with developing the æsthetic sense through art and strong bodies through physical culture. Were morality a necessary function of art, Greece in her highest development of art would not have been the most corrupt in morals. Were morality a necessary function of physical development, we should find among savages many of the highest types of morality. To confirm our view that they are not necessary correlatives we would need only to mention a recent noble writer who was a poor hunchback and a sickly dwarf, and compare his morality with that of his brother, a champion athlete and a cowardly assassin; the former a hero, the latter a violater of nearly every command in the decalogue. The greatest hero in the football field may be the first to quail on

facing an audience; he may be one of the first to cheat in examination or to commit a crime. Should he sin his physical culture is not the cause. They are not in any way necessarily related. I heard a football enthusiast argue at the National Educational Association meeting that football develops those qualities which make men always co-operate in every enterprise. Now, he could equally well have said that in the football schemes where one side is seeking to get the advantage of the other side, there on the field the spirit of cornering the markets and forming coal trusts is developed. It is a game of co-operation—for one side; but how about altruism toward the opponents? All of these arguments are absolutely inapplicable.

Professor Hanus remarks:

> Power means ability to do something—to bring about results. The results achieved will always be in some one field of activity, however; and the kind of power developed through the pursuit of a given subject will consequently be usually restricted to power in dealing with data of a particular sort. That is to say, power in physics is different from power in Latin; and those forms of power are different from power in plastic art or pure mathematics, as these last are different from each other. There is no such thing as power in general that can be cultivated through the pursuit of any one subject, and can then be drawn upon at any time for successful achievement in other subjects. That a man shows power first in classics and afterward in mathematics or botany, for example, does not prove that the man's mathematical or scientific ability was developed through the classics. It proves only that the man has both linguistic and mathematical or scientific ability. It does happen, of course, that different subjects like mathematics and physics, or physics and chemistry, or drawing and painting, are closely related; and hence the data of one subject are often found to some extent in another, and also that the method of one subject can be appropriately applied to another . . . . But, in general, the relations of the subjects will not be close enough to justify the assumption that power may be developed through one subject for use in other subjects.

I next turn to a brief consideration of some of the subjects of instruction which are emphasized in the curriculum because of their so-called disciplinary values. Let it be understood at the outset that I do not aim to discredit the value of these subjects in the directions in which they have abundant values. I simply consider them to determine, if possible, the values attaching to them, and through that evaluation to assign them propor-

tionate place in the curriculum. The educationist should have absolutely no prejudices in the matter. The first of these subjects is Latin. Let us first inquire how this subject found its way into the curriculum. We find that during the Middle Ages Latin was required in all the church schools—and there were almost no others—for the reason that the Bible was accessible in Latin, and all the works on grammar, rhetoric, and logic, though excerpts in the main from the works of Aristotle, were also in Latin. The monks, the clergy, and all who pretended to learning spoke Latin; all books were written in Latin; in fact, it was the one universal language establishing a bond among all the educated men of the world. Even after the gradual evolution of the various continental languages and literatures, as well as English, the Latin still remained an important medium of communication as a universal learned language.

These facts are too well known to need more than mention here. But it should be borne in mind that the language gained its great hold at a time when it was a practical necessity. Of course, it took a long time for schoolboys to master it, because they did their thinking and ordinarily expressed themselves in another tongue—their vernacular. Hence it is no wonder that in Sturm's epochal Strassburg course of study, Latin in all its variations occupied about eight-tenths of all the school life. The vernacular was not deemed worthy of cultivation.

Based upon continental models, the grammar schools and great public schools of England developed upon monastic foundations. These, in turn, furnished the pattern for the grammar schools of New England. These grammar schools were founded "to fit ye youth for ye university." Now, the colleges of the New World—Harvard, Yale, King's (now Columbia), William and Mary—were all patterned after old Oxford, with all their monastic traditions and ecclesiastical tendencies. The secondary schools, in turn, were primarily fitting schools for the colleges. Such, in brief, is the way in which our schools became so Latinized. Greek gained a large place following the Renaissance. It came not so much in response to practical demands as in an attempt to wear the finery of an illustrious people in the hope of thus becoming illustrious.

Now, after having outlived their practical necessity, occasionally someone has stopped and inquired why they were retained. Tradition kept them there, and the upper schools require them, would be the real answer; but the answer has been: "They are there (1) because of their great value as a discipline in education; (2) because of their practical value in giving an understanding of the vernacular." The first answer is based (1) upon the fact that they have such a large hold, and *ergo* must be valuable; and (2) because it is said that all the great men have been trained to strength by means of this régime. It is said that all the best students in the schools come from the classical course. Let us search out the fallacy. In the first place, the best students expect to go to college. Now, what do the colleges demand for entrance? In the second place, only the best ones take the classics, because they are traditionally difficult. Under such conditions, why should not all the best students come from the classical course?

Is there any basis of fact in assuming that those who take the traditional classics and mathematics are stronger mentally and better trained for life's duties, more fitted for the higher enjoyments of life, for service to humanity? True, there are multitudes who come up to these measurements who have been so trained; but is it not because all who aimed at this believed that the traditional road was the only one? Many of the world's illustrious have never been schooled in the traditional arts, and many who have been so schooled have not become illustrious. We need only to name such men as Shakespeare, who knew little Latin and less Greek; and Lincoln, trained in the school of adversity; and call attention to the many illustrious Chinese, Japanese, Hindoos, Russians, and those of other nations in the present and the past, to show that there are other schools which may develop all these desirable qualities.

Mr. C. H. Henderson writes:.

One cannot help being struck anew with the numbers of people who have come to distinction quite outside of the formal educational process, not uneducated people, but people educated outside of the schools, by life itself. The great literatures and fine arts and heroisms have not been the exclusive,

or even the general, performance of the learned. The great things have more commonly been done in the large open of life, done by men and women of organic powers, and sincere lives, and warm hearts.[1]

While cheerfully acknowledging that most of the best, wisest, most useful men of our time in America and Europe have taken the traditional course, may we not rightfully inquire whether their culture and wisdom have not been gained through contact with men of wisdom and culture, and not through any special discipline, least of all through subjects which have not caused them to think wise thought? (I refer here, of course, to the grammar and translation period.) We send the boy to college, and then ascribe his development to the formal discipline rather than to the inspiration received through close contact with worthy minds. Would he not have emerged from the college at graduation equally wise, equally cultured, equally useful, had an entire substitution of subjects been effected? I am inclined to believe that one could not tell B.A.'s from B.S.'s unless they were labeled. I believe this is exactly the meaning of the single degree conferred by Cornell and other universities.

During the Middle Ages in Europe I can readily understand that a knowledge of Latin was indispensable to culture. It formed the only means of communication with the world of learned men and the only medium of entering the world of letters. But the most classic period of human history was the most barren of productive thought and the fullest of bigotry, intolerance, superstition. It was because of dead formalism, logic without sense, and not because the learned spoke Latin. But the fact shows that Latin, or any other language, *per se* cannot develop culture. The thoughts themselves are of significance rather than the vehicle. The Renaissance was a turning away from dead formalism—from grammar, from rhetoric, from linguistic dexterity—to a study of realities—naturalism.

Admitting that great values come from the study of Latin, permit me to suggest that the average high-school pupil gets little of the so-called culture value. Professor Thorndike, of Columbia, made an investigation to determine the amount of

[1] HENDERSON, *Education and the Larger Life*, p. 113.

knowledge and appreciation of Roman life and civilization that had been obtained through a study of the Latin. This understanding of the character, life, institutions, etc., he supposes is what is meant by "culture" as coming from the subject. He gave a considerable number of students of Latin the following questions: "(1) Was Cicero courageous? (2) In which were the Romans most proficient, making laws, writing books, or building beautiful buildings? (3) Which were the Romans most like, the English or the Americans? Why? (4) Is there any other reason for reading Cæsar besides the wish to learn the Latin language?"

The answers, he says, show a surprising ignorance of the simplest historical facts which might be gained. He writes:

> It seems fairly sure that the average high-school student is more likely to be misinformed than instructed about Roman history by his year's reading of Cicero. He gets only a superficial stratum of fact and may be utterly mistaken in his interpretation of it. The text seems to have failed signally to arouse any useful interest in the man Cicero or the times.

The right answers he was led to believe were derived from reading the history of Rome in the English. At most he feels sure that a greater appreciation of Roman civilization could have been gained through studying Roman history in English less than two hours a week for a year than was gained through four years' study of the language.

Now, I believe that Latin properly studied may have great value for English, but some even doubt whether it has the value often supposed. Dr. Alexander Chamberlain, of Clark University, whose anthropological investigations have received such merited attention, asserts that much of the supposed value of Latin for English has little foundation in fact. He asserts that Latin is not the basis of English; that Latin has no more shaped the English tongue than Rome has built the Saxon heart or made the Saxon arm. English grammar is soundly Anglo-Saxon run through the sieve of a mind that never had a Latin bent. The vocabulary in use is largely Anglo-Saxon, too. All the Latin in English has been pickled in Anglo-Saxon brine. All the Latin in modern English is thus pretty well pickled. Before it went

into the brine, too, every bit of Latin had the Anglo-Saxon meat inspector's mark upon it. And a good many carcasses went to the soap factory.

Dr. Nicholas Murray Butler contends that the only way to regenerate English is to go back to the Bible, *i. e.*, the Anglo-Saxon version. I do not wish it understood that I should like to have the classics banished from the schools and colleges—by no means. I intend that my children shall have an acquaintance with them. I believe that they possess educational values peculiarly their own. But these values are not the ones usually ascribed to them. And a correct estimation of these values would place them in our schools in different proportions. In the first place, I believe that they have a value in contributing to an understanding and an appreciation of our own vocabulary. But this does not necessitate years of translation and finicky parsing. The end should not be translation at all; for translation English is proverbially poor English. In the second place, they have a value in contributing to habits of carefulness of thinking. This, however, is not peculiar to the classics. German, French, Russian, and non-language subjects would do the same, if taught continuously. A third value is one similar to that coming from biological study. In biology we study the evolution of physical structure; in the classics, the evolution of psychological processes. Through language development the comparative psychologist has gained some of his most important chapters. History comes in the same category; or, more properly, biology, dead languages, sociology, anthropology, genetic psychology, paleontology, geology, are all historical subjects. No historian has completed his education who is not sufficiently conversant with these fields to appreciate their significance.

If Latin and mathematics are so valuable and contribute so much to strength, why are they not kept up after school days are over? We keep up literature, history, science, and sociology, and feel that we grow and expand because of them. But I am afraid the lexicons and the mathematical manuals become very dusty. The truth is that they have vital interest to only a limited number. Now, these things which touch our lives are

the things which cause us to think and to develop. And as education is life and life is education, should we not bring into curricula a greater proportion of those things that have a vital relation to life and its interests?

I believe that much energy has been misapplied in education because of the fallacious notion regarding the nature of mind. So long as the old doctrine of innate ideas is held in any form (though disguised so as to be hardly recognizable), a wrong view of education must ensue. According to that theory, the mind is preformed with all its possibilities foreordained; and the business of the educator, says Socrates, and so says the Middle Age philosopher, is to draw forth by exercise, by gymnastics, develop these ideas, and bring them to maturity. In physical development the same theory was acted upon. Exercise, the trainers said, is the *sine qua non* for physical development. The strength is there; it needs only training to make it manifest. While partly true, still another indispensable factor is only just beginning to be recognized. The modern trainer not only provides gymnastics, but a training table as well.

Now, the mind also grows by what it feeds on. The mind is a functional product of all its past experiences. It cannot exercise on nothing. It is exercised only when dealing with facts. It grows only as experiences accumulate, To chew sole leather would furnish exercise, but little nutriment. Mental gymnastics upon valueless material is equally inane.

The apperception theory of the mind, first formulated by Herbart, changes the whole point of view of instruction and education. According to this theory, the mind can grow in a given direction only through experience received in that direction. Vague and general gymnastics cannot develop the mind, because it can lay hold only of those new experiences for which former experiences have fitted it. According to this theory, we cannot develop the sight without seeing, the hearing without hearing, the emotions without feeling. The subject-matter then becomes of great moment. It must have desirable content, and not be mere form; must nourish, not merely discipline. To teach a boy to think, he must have something to think

about. No formal logic ever made a thinker. The mind must have facts to compare.

Those subjects develop the mind most which cause the most thought. Now, which of the subjects occupies the pupils' thoughts the most when not actually required to prepare his lessons? It seems to me there can be but one answer: those which deal with things and human activities. What subjects deal with these? Plainly literature, history, economics, sociology, science. The *Record-Herald* showed upon investigation that in almost every public library boys were seeking books on electricity. It would be interesting to see how many seek Cæsar or Xenophon in the original. Great stacks of history and literature find their way without compulsion into the boys' and girls' hands.

The boys and girls in the high schools are just ready to grapple with many of those important problems which occupy the theater of action about them. Listen to their debates. What do they choose for topics? How, I ask, shall we fit them to form intelligent opinions about strikes, tariff, Cuban reciprocity, Philippine independence, the city taxes, St. Louis boodlers, government ownership, etc.? Kaiser Wilhelm said they must train up young Germans, not Romans. Similarly, we must train up young Americans, not young Greeks or Romans. Very significant is the dropping of compulsory Greek in the German gymnasia and the substitution of optional English. It is a measure designed to help enable the young German better to adjust himself to his environment. Latin and Greek have also been omitted from entrance requirements to London University.

Our boys and girls of today are to be in the midst of the world's affairs tomorrow; and still, in view of this, there are those who would designedly shut them off from the world, busy them with expressions of thought absolutely remote from present-day interests, make them learn mathematical formulæ, which the majority will never use directly or indirectly; all in the hope, well meant, that they will thus learn to think. The only way to learn to think is to have something to think about. If we merely wished to give something hard, why not give them Russian or chess?

In view of the foregoing, may we not conclude that the different studies should be arranged so that the traditional subjects shall receive no more attention than others, except from those pupils who intend to specialize? The course might well include some Latin for all, possibly a year, and more for those who specialize. It certainly ought to include some modern language, as that is a means of gaining touch with present-day civilization, affords as much so-called discipline as the classics, and is very apt to be of direct value. English should be accorded its rightful place, not as a parsing exercise—we spend years too much time on that sort of profitless work now—but English which leads the student into all the best thoughts of all times. The youth should become saturated with the greatest literature, and through the ideas assimilated his entire life should receive bias and direction. The sciences should be included in every course for every student—not enough to be specialized, but enough to open up the whole vista of possibilities. History should be accorded more than the stingy place now given it. All should be given introductory courses in algebra and geometry, but two years in the high school should be ample. Is it not inconsistent, when we plead for all-around culture, and then shut the youth up through over half his school days with nothing but words, words, words? The narrowest sort of specialization! The one who studies natural science three or four years is dubbed a narrow specialist; the one who studies dead languages twice as long is said to be gaining all-around training and laying a broad foundation.

Then, lastly, there should be added to the groups a line which we may term the social group. In it would be included civics, something of political economy, social facts and forces, ethics, if possible a little psychology, and a consideration of educational questions. I do not mean the pedagogy of teaching arithmetic, but such questions as school taxes, the relation of the school to the state, its value to society, the significance of early education in correct habits, the value of co-operative educational factors, etc. In the university no mathematics should be required except in the scientific course, and no classics except in the classical

course. According to real needs, I believe we should require of all, history, economics, sociology, psychology, and education. These are the ones that help most in producing an adjustment to environment.

We must break down the false notion of the absolute difference between that which is of utility and that which affords culture. In an ideal education they will be identical.

Any study is cultural and highly educative which gives power (knowledge); puts one in touch and in sympathy with civilization; makes one open minded; gives one breadth of interests; makes one interesting and likable, refined, and useful to society. True culture means developed intellect and refined feelings; deals with morality as well as things intellectual. President Draper says that one may obtain culture from Latin and Greek, also from building bridges. Those subjects, then, it would seem to me, afford most culture which come nearest to life's interests. No study in the course has a right to a place for its formal discipline alone. Who would crack nuts for the exercise in cracking them? The facts themselves should be of sufficient value to justify their contemplation. The old doctrine of educational gymnastics must give way to the new one of nurture. The mind grows by what it feeds on, as well as through exercise.

All development in nature has come about because exercise in a given direction has produced development in that direction. Hence, if we would develop the pupil physically, he must have physical exercise and food; if he is to be developed mentally, he must have mental food and exercise; if he is to be developed morally, he must have moral nutrition, *i. e.*, knowledge of things moral, and be exercised in the performance of moral acts. If the pupil's social nature is to be developed, there is but one way, and that is by placing him in a social environment. The one who pores over his grammar and his mathematics, and excludes himself from society will grow up anti-social. Now, all school life from the kindergarten through the university should have for one purpose the discovery of aptitudes and the developing of the same. These interests should be many-sided. Since growth is special, breadth of interests, largeness of view, and judicial-

mindedness can come only by touching life at many points. Poring over one's grammar, valuable as it may be, will not develop one's social nature, one's political interests; will not enlarge one's views of men and events. These can be gained only by nourishment obtained from knowledge along these lines. Mathematics, for example, teaches many rules, but not the Golden Rule; that can be learned only by mingling with one's fellows. The college student who becomes a recluse starves his nature in some of the most important directions. He becomes narrow and contracted, and unable to sympathize with society. Equally undesirable is it for the student who spends all his time in society of the present and never knows the great truths which books may reveal to him.

I plead for the cultivation of breadth of interests and the connecting of formal school work with life's interests. "But," says someone, "many interests are utilitarian." Granted. But utilitarian does not necessarily mean mercenary. By utilitarian I mean that which can be utilized in connection with life's pursuits and interests. Sir William Hamilton says a utilitarian is "simply one who prefers the useful to the useless; and who does not?" The poet studies the flowers, the changing tints of the rainbow, the birds of the air, the hills and vales, and then bursts forth into song, utilizing the stores of images he had gathered. The engineer, the architect, the inventor, the railway superintendent, the landscape artist, the business promoter, all utilize stores of imagery in developing their various plans. Shall we not hold their works in as high esteem as those of the poet, the philosopher, the statesman, or the classicist? A sanitary engineer purifies a city and makes possible the development of vigorous bodies, which in turn provide conditions for the sound mental life. These together promote cheerfulness and higher ideals. Is his not as high an order of service to humanity as that of one who writes verses, paints pictures, or echoes an unknown tongue or two? The one who designs a beautiful, commodious, and hygienic structure certainly displays as much mental power as one who teaches history, Latin, or philosophy within it. His contribution to the elevation of society is also equally great. In

developing architectural skill he has secured soul-expansion not less than the classicist. To be sure, they are of different types, but society progresses only with differentiation and specialization.

President Eliot tells us:

> The scientific imagination is quite as productive for human service as the literary or poetic imagination. The imagination of Darwin or Pasteur, for example, is as high a form of imagination as that of Dante, or Goethe, or even Shakespeare, if we regard the human uses which result from the imaginative powers, and mean by human uses, not meat and drink, clothes and shelter, but the satisfaction of mental and spiritual needs.

The public high schools and colleges should ever remain true centers of liberal culture, but that does not mean that they should assume that only a certain few protected subjects are cultural. The liberality comes from the breadth of interests stimulated, the development of a scientific spirit and an openness of mind. The method which pervades is more indicative of liberality and culture than the program of studies. We may teach dead languages, but the teacher and the method need not be dead. On the other hand, biology may be taught after a method that stifles expansive spiritual growth. Great abiding interests, breadth of view, and richness of social service are marks of culture; adherence to tradition, contracted vision, and selfishness of action, marks of pedantry. Melville B. Anderson wrote:

> The way to educate a man is to set him to work; the way to get him to work is to interest him; the way to interest him is to vitalize his task by relating it to some form of reality.

President Eliot said last July, in his address on "The New Definition of a Cultivated Man," that a cultivated man should possess, not all knowledge, but that "which will enable him, with his individual personal qualities, to deal best and sympathize best with nature and with other human beings."

Finally, and of greatest importance as educative factors, are the personality and influence of the living men and women who are in the environment of the youth. We are too apt to regard education like a manufactory. So many units of Latin, mathematics, and history put into the hopper will give us back an educated being. But no matter how well proportioned the mix-

ture may have been, unless the great truths and worthy ideals have been transformed into spiritual forces, all is unavailing. Civic ideals and moral virtues may have been rehearsed, but only when they have quickened dormant possibilities into abundant life have they been to any worthy degree educative. Now, great, inspiring, living teachers can do infinitely more than the mere pursuit of a subject toward the determination of what shall take root. Next, and perhaps not even second in importance, is the influence of companions. Someone has said with great truth: "We send our boy to the schoolmaster to be educated, but the schoolboys educate him." They largely determine a youth's interests, and almost entirely his actions. And, after all, actions count most. We will with all we have willed, and every act is the beginning of a habit that becomes a lifelong phantom tyrant.

Hence, although every subject may contribute to will-power, the direction in which that power will be applied is absolutely determined by the great interests and passions which may happen to lay hold of the youth's life. So the course of study, the paper curriculum, which every new principal "revises," is a secondary matter. The all-important thing is to have great souls which breathe out abundant life, inspiring and invigorating all with whom they come in contact.

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